

贺兰山毛翅目两新种记述 (毛翅目, 幻沼石蛾科, 沼石蛾科)

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摘要 描述采自内蒙古贺兰山自然保护区的毛翅目 2 新种, 即多刺闭室沼石蛾 *Apataniana spinosa* Yang et Tao, sp. nov. 和贺兰光突沼石蛾 *Astratodina helanensis* Yang et Jia, sp. nov.。模式标本保存于南京农业大学昆虫标本馆。

关键词 毛翅目, 闭室沼石蛾属, 光突沼石蛾属, 新种, 中国。

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闭室沼石蛾属 *Apataniana*, 隶属于幻沼石蛾科 Apataniidae, 世界已知 15 种, 分布于古北区的有 13 种 (古北区东部 7 种, 古北区西部 4 种, 跨越古北区东、西部 2 种), 分布于东洋区的有 2 种 (Mey et al., 1989; Morse, 2010)。截至 2010 年底, 我国仅已知 1 种: *Apataniana hutchinsoni* Mosely, 1936 (西藏; Mosely, 1936)。光突沼石蛾属 *Astratodina*, 隶属于沼石蛾科 Limnephilidae, 世界已知 4 种, 均分布于东洋区, 其中 *Astratodina antenor* Schmid, 1991 和 *Astratodina anteros* Schmid, 1991 分布于印度, 其余 2 种在我国有分布: *Astratodina agenor* Schmid, 1991 (四川, 尼泊尔) 和 *Astratodina inermis* Mosely, 1936 (西藏, 巴基斯坦, 塔吉克斯坦)。本文描述了作者从 2010 年夏, 采自内蒙古贺兰山的毛翅目标本中 2 新种: 多刺闭室沼石蛾 *Apataniana spinosa* Yang et Tao, sp. nov. 和贺兰光突沼石蛾 *Astratodina helanensis* Yang et Jia, sp. nov.。

形态学术语应用 Schmid 1998, 并参考 Zhou (Zhou et al., 2009) 和 Yuan (Yuan & Yang, 2010)。模式标本保存于南京农业大学昆虫标本馆。

多刺闭室沼石蛾, 新种 *Apataniana spinosa* Yang et Tao, sp. nov. (图 1~5)

雄虫体长 5~6 mm, 前翅长 9.6~9.8 mm ($n=3$); 雌虫体长 5.5~8.5 mm, 前翅长 8~12 mm ($n=28$)。

体褐黄色。雌虫触角褐黄色, 雄虫触角基部 1/3 深褐色, 向端部色渐浅, 顶端黄白色; 雌、雄虫触角末端数节基部收缩, 略呈锯齿状。胸部背面近黑褐色, 中胸后盾片前缘具黄色飞鸟状横带。胸足距式 1-2-2。后翅臀区较宽大, 具完整的 I, II, III,

V 叉, 分径室 (DC) 封闭, 关闭明斑室 (TC) 的中肘横脉 m-cu 极短, 使 M3+4 在近基部处与 Cu1 主干极其接近。

雄外生殖器 第 9 节短, 背区呈狭窄带状。肛前附肢背、腹扁, 侧面观长棒状, 约为第 10 背板的 2 倍长, 近基部 1/3 处最宽, 向端部渐收窄, 末端扁平圆形; 背面观附肢弯曲成广弧形, 末端相互交叉。第 10 节背板纵扁, 背面观基部宽, 端部 2/3 收窄呈花瓶形, 亚端部具瓶颈状缢缩。下附肢 2 节, 基节圆柱形, 端节深裂成背、腹两肢, 背面观呈相向的弧状弯曲; 腹肢简单, 顶端具尖刺, 指向内侧; 背肢略细, 顶端尖细, 基部具 2~3 个黑色粗刺。阳茎侧面观呈拱桥形; 阳基侧突 1 对, 基部 2/3 粗壮, 沿阳茎鞘下曲, 端部 1/3 向上翘起, 末端尖。

正模 ♂, 内蒙古贺兰山腰坝 (38.7° N, 105.8° E; alt. 2 243 m), 2010-08-08, 梁少光采。**副模**: 2 ♂♂, 28 ♀♀, 采集资料同正模; 2 ♂♂, 15 ♀♀, 内蒙古贺兰山黑沟 (39.2° N, 106.0° E; alt. 1 700 m), 2010-08-04, 梁少光采; 1 ♀, 内蒙古贺兰山小松山白土山沟 (39.1° N, 106.0° E; alt. 1 907 m), 2010-08-14, 梁少光采。

新种与分布于哈萨克斯坦的 *Apataniana cornuta* Ivanov, 1991, 非常相似, 两者后翅的分径室封闭, 关闭明斑室的中肘横脉 m-cu 极短, 使 M3+4 在近基部处与 Cu1 主干极其接近; 雄外生殖器的下附肢端节均深裂成背、腹两肢, 从而区别于该属的其他所有成员。两者雄外生殖器的主要区别在: 1) 新种肛前附肢侧面观长棒状, 长约为第 10 背板的 2 倍, 末端扁平圆形; 背面观弯曲成广弧形, 末端交叉, 而后者长不伸达第 10 背板顶端, 背面观呈肘状弯曲,

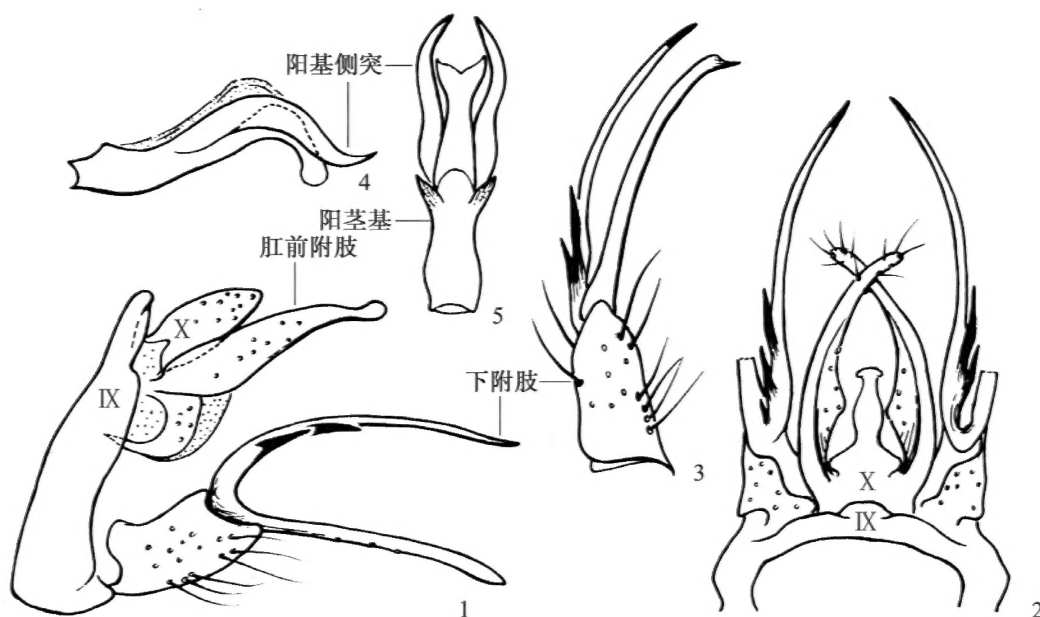


图1~5 多刺闭室沼石蛾, 新种 *Apataniana spinosa* Yang et Tao, sp. nov., 雄外生殖器 (male genitalia)
1. 侧面观 (lateral view) 2. 背面观 (dorsal view) 3. 左下附肢腹面观 (left inferior appendage, ventral view)
4. 阳茎侧面观 (phallus, lateral view) 5. 阳茎腹面观 (phallus, ventral view)

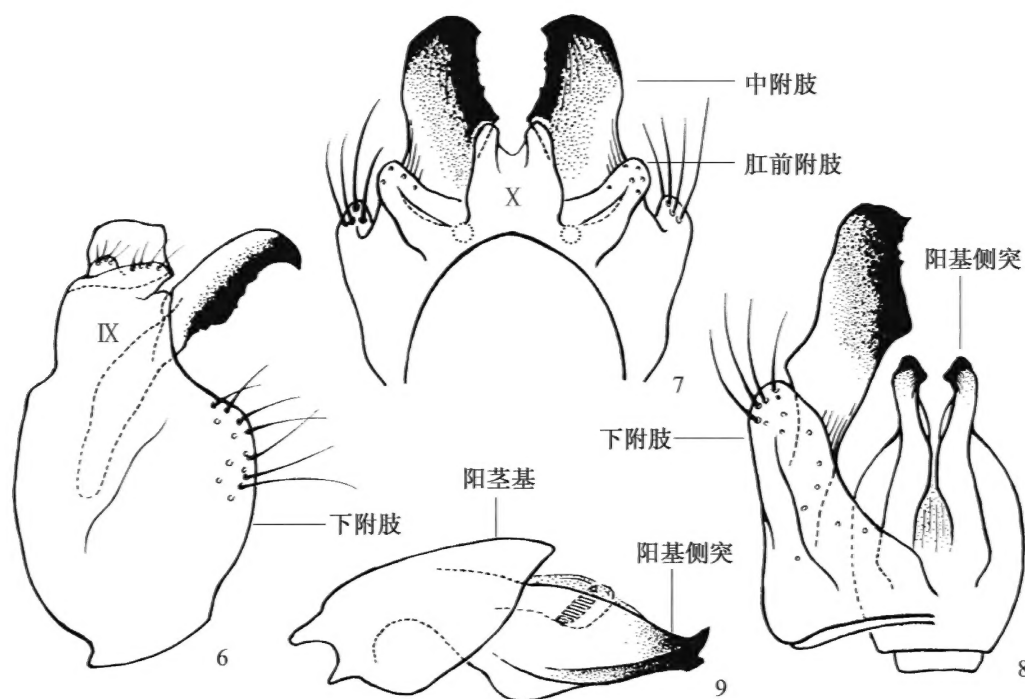


图6~9 贺兰光突沼石蛾, 新种 *Astratodina helanensis* Yang et Jia, sp. nov., 雄外生殖器 (male genitalia)
6. 侧面观 (lateral view) 7. 背面观 (dorsal view) 8. 腹面观, 右中附肢和右下附肢已移去 (ventral view, with right intermediate and inferior appendages removed) 9. 阳茎侧面观 (phallus, lateral view)

末端尖锐; 2) 新种第10节端部2/3收窄呈花瓶状, 末端具瓶颈, 而后者基部缢束, 余部呈卵圆形; 3) 新种下附肢端节背肢基部具2~3个黑色粗刺, 而后者简单, 无刺。

词源: 拉丁词 “*spinosa*”, 多刺的, 用来形容雄

虫下附肢背肢基部具2~3个黑色粗刺。

2 贺兰光突沼石蛾 *Astratodina helanensis* Yang et Jia, sp. nov. (图6~9)

雄虫体长11 mm, 前翅长14.2 mm ($n=1$)。

雄虫 体淡黄褐色。头部触角及颚须黄白色,

中胸背板中央具黄色宽纵带, 小盾片毛瘤浅褐色。胸足距式 0-2-2。

雄外生殖器 第 9 节侧面观近背区突然收窄。肛前附肢短叶状, 侧面观大部分与第 9 节愈合, 仅端部分离; 背面观长约为中宽的 2 倍, 末端钝圆, 左右肢分歧, 指向外侧方。第 10 背板侧面观和背面观均呈亚距形, 端缘中央具广“U”形凹刻, 其深达中长的 1/3。中附肢粗壮, 大颚状, 高度骨化, 顶端钝圆, 内侧具不规则细锯齿。下附肢短, 基部与第 9 节完全愈合, 期间仅有细弱的分界痕迹; 侧面观亚距形, 末端宽圆, 端区密生长刚毛。阳茎粗壮, 阳茎基圆桶形, 侧面观背缘长约为腹缘的 2.5 倍; 阳基侧突完全骨化, 高度纵扁; 侧面观基部宽, 向端部渐收窄且色变深, 末端具短分叉; 腹缘狭窄, 腹面观中部相互贴近, 末端指向内侧。

正模 ♂, 内蒙古贺兰山小松山白土山沟 (39.1° N, 106.0° E; alt. 1 907 m), 2010-08-14, 梁少光采。

新种不同于该属已知 4 种 (Schmid, 1991; Mosely, 1936) 中的任何一种, 新种雄外生殖器: 1) 中附肢大颚状, 末端不分支; 2) 下附肢侧面观宽而短, 亚距形, 末端圆钝; 3) 阳基侧突侧面观末端具短分叉, 腹面观腹缘狭窄, 中部相互贴近, 末端指向内侧, 可区别于该属的任何一种。

DESCRIPTIONS OF TWO NEW CADDISFLY SPECIES FROM HELAN MOUNTAIN, CHINA (TRICHOPTERA, APATANIIDAE, LIMNephilidae)

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Abstract Two new specie *Apataniana spinosa* sp. nov. (Apataniidae) and *Astratodina helanensis* sp. nov. (Limnephilidae) are described and illustrated from Helan Mountain, Inner Mongolia of China. Type specimens are deposited in the Insect Collection of Nanjing Agricultural University.

1 *Apataniana spinosa* Yang et Tao, sp. nov. (Figs 1-5)

The new species is allied to *Apataniana cornuta* Ivanov, 1991, from Eastern Kazakhstan, in sharing similar venation pattern of hind wing and deeply incised distal segment of inferior appendage in male genitalia. They differ from the other members of this genus and can be a separate species-group. The new species differs from the latter in male genitalia in: 1) preanal appendages two times as long as segment X; evenly curved inwards, with rounded apices crossed each other in dorsal view (not quite as long as segment X; each curved in elbow like, with apico-inner angle

词源: 新种以模式标本产地而命名。

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stretched in point in dorsal view in *Apataniana cornuta*); 2) distal 2/3 narrowed in vase like (broad oval in *Apataniana cornuta*); 3) distal segments of inferior appendages with dorsal branches each bearing two or three stout, black spines basally (simple, without any spine at base in *Apataniana cornuta*).

Holotype ♂, Inner Mongolia, Helan Mountain, Yao-Ba (38.7° N, 105.8° E; alt. 2 243 m), 8 Aug. 2010, collected by LIANG Shao-Guang. Paratypes: 2 ♂♂, 28 ♀♀, same data as holotype; 2 ♂♂, 15 ♀♀, Inner Mongolia, Helan Mountain, Hei-gou (39.2° N, 106.0° E; alt. 1 700 m), 4 Aug. 2010, collected by LIANG Shao-Guang; 1 ♀, Inner Mongolia, Helan Mountain, Xiaosongshan, Baitugou (39.1° N, 106.0° E; alt. 1 907 m), 14 Aug. 2010, collected by LIANG Shao-Guang.

Etymology. The Latin word “*spinosa*” means “thorny”, in reference to distal segments of inferior appendages with dorsal branches each bearing two to

three stout, black spines.

2 *Astrotodina helanensis* Yang et Jia, sp. nov. (Figs 6–9)

The new species is not similar to any members of the genus. It can be distinguished from all other species in male genitalia by: 1) intermediate appendages mandible like with blunt apices not divided; 2) inferior appendages broad and short, with broadly rounded apical margins in lateral view, its bases completely fused with segment IX; 3) parameres each with apex shortly forked, in ventral view, with

its narrow ventral margins sub-parallel to each other and appressed near the middle, each with apex directed mesad.

Holotype ♂, Inner Mongolia, Helan Mountain, Xiaosongshan, Baitugou (39.1° N, 106.0° E; alt. 1 907 m), 14 Aug. 2010, collected by LIANG Shao-Guang.

Etymology. The specific name is derived from the type locality Helan Mountain, Inner Mongolia Autonomous Region.

Key words Trichoptera, *Apataniana*, *Astratodina*, new species, Helan Mountain, China.